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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,749	12/21/2001	Joakim O. Blanch	1391-27201	8742

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EXAMINER
LE, TOAN M

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/027,749	BLANCH ET AL.
	Examiner	Art Unit
	Toan M Le	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) *20-29 and 38-57* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 30-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,6 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

I. A method of determining characteristics of an anisotropic earth formation based on source waveform and source wavelet analysis (page 4, lines 14-22).

II. A method of determining a velocity of fast polarized and slow polarized shear waves (page 4, lines 1-3; figures 1-2).

III. A method of determining an orientation of fast and slow polarized shear waves (page 4, lines 1-3; figures 1-2).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, none is generic.

2. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

3. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

4. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention. :

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. During a telephone conversation with Mark Scott on 1/23/03 a provisional election was made with traverse to prosecute the invention of **I, claims 1-19** and **30-37**. Affirmation of this election must be made by applicant in replying to this Office action. **Claims 20-29** and **38-57** are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Response to Traversal

(1) Inventions I, II, and III are distinct, each from other. For instance, invention I is drawn to a method of determining characteristics of an anisotropic earth formation based on source waveform and source wavelet analysis comprising estimating a transfer function and objective function for the waveforms and wavelets. Invention II is drawn to a method of determining a velocity of fast and slow shear wave polarizations while invention III is drawn to a method of determining an orientation of fast and slow polarized shear waves.

(2) There is a serious burden to the examination of each of the additional groups as demonstrated by the various distinct groups.

(3) The requirement is still deemed proper and is therefore made FINAL.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-19 and 30-37 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-19 and 30-37 of copending Application No. 10/025157.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 and 30-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Referring to claims 1 and 30, in lines 9-12, "estimate source waveforms from the decomposed waveforms to create estimated source waveforms; and comparing the estimated source waveforms to determine characteristics of the anisotropic earth formation", it is not clear how the estimate source waveforms is defined from the equation 1, on page 7, which is

$S_{ESTi}(t) = [TF]^{-1} R_i(t)$ where [TF] is the assumed transfer function, which is not clearly defined along with its inverse function.

As to claim 4, in lines 4-5, "estimating a transfer function of the anisotropic earth formation comprising at least a strike angle for the anisotropy and an acoustic velocity", it is not clear how the estimated transfer function is defined comprising the strike angle and the acoustic velocity.

The disclosure fails to state or teach one of ordinary skill in the art the physical description of the transfer function mathematically, which can be "relatively simple, taking into account only the finite speed at which the acoustic signals propagate and the strike angle, or may be very complex, to include estimations of attenuation of the transmitted signal in the formation, paths of travel of the acoustic signals, the many different propagation modes within the formation ...". Without this disclosed transfer function, one skilled in the art cannot practice the invention without undue experimentation because of the number of parameters listed above.

Claims 2-19 and 31-37 are rejected being dependent to rejected claims 1 and 30.

Remarks:

Response to Arguments

Applicant's arguments filed 5/6/03 have been fully considered but they are not persuasive.

Referring to claims 1-19 and 30-37, Applicants provide a Declaration from Dr. Arthur Cheng arguing that "In particular, Dr. Cheng believes that at least one assumed transfer function is defined. Paragraph [0024] states, 'The transfer function may be relatively simple, taking into account only the finite speed at which the acoustic signals propagate ...'. Dr. Cheng reads this to mean the assumed transfer function is a simple 'travel time equals distance divided by speed' calculation. The transfer function ... may be very complex, to include estimations of attenuation of the transmitted signal in the formation, paths of travel of the acoustic signals, the many different propagation modes within the formation.... Dr. Cheng understands this description to mean that embodiments of the invention may also be used where the transfer function is more complex, to include borehole geometry and the like.

The arguments fail to mathematically provide a physical description of the transfer function and its inverse transfer function applied to this claimed invention so that one can practice the invention without undue experimentation because of the number of parameters involved.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,098,021 to Tang et al. U.S. Patent No. 6,526,354 to Bose et al.

U.S. Patent No. 4,789,969 to Naville U.S. patent No. 4,648,039 to Devaney et al.

U.S. Patent No. 4,951,267 to Chang et al. U.S. Patent No. 5,398,215 to Sinha et al.

U.S. Patent No. 4,995,008 to Hornbostel et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0655.

Toan Le

July 22, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800